

## APPENDIX: MIDI DETAILS AND MIDI EXCLUSIVE-CODES

This section is highly technical and intended only for computer freaks and other such fiends planning on writing their own MIDI software for controlling the BIT 01. Normal mortals, who become faint when confronted with esoteric codes and are frightened of being bitten by all these bytes, can cheerfully ignore the following, and get on with making music!!! Roll over Beethoven!

As for you freaks: before we get down to the dirty details, we'd like to point out that you will shortly be passing the limits of the "MEMORY PROTECT" switch. Program data manipulation via MIDI bypasses this safety device! You are therefore strongly advised to dump all your precious voice data onto cassette BEFORE exploring the weird and wonderful world of MIDI code sequences!

The BIT 01 can receive MIDI commands on any of the 16 MIDI channels. Executable commands are detailed below. The following are the power up defaults:

- MIDI Mode: OMNI ON (Parameter 72 = "1")
- MIDI Channel: 1 (Parameter 73 = "1")
- Pitch Bend: enabled (Parameter 68 = "1")
- Modulation: enabled (Parameter 69 = "1")
- Release Pedal: enabled (Parameter 70 = "1")
- Program Change: enabled (Parameter 71 = "1")

Power up generates an internal "All Notes Off" command. This command is also generated whenever Omni Mode (Parameter 72) changes status, and when Tape Mode is activated.

In the following text we use the binary representation of MIDI codes and data where appropriate. Other values are given in hexadecimal; these are identified by a trailing "H" (e.g. 29H).

## MIDI SYSTEM EXCLUSIVE CODES

<u>STATUS</u>	<u>DATA BYTE(S)</u>	<u>DESCRIPTION</u>
1111 0000	001Q 0101 0iii nnnn  0ccc cccc 0www wwww	Manufacturer ID (BIT, 25H) iii = 001 = <u>BIT 01</u> nnnn = MIDI Channel No. Exclusive data until EOX cccc = Command wwww = Data Byte(s)
1111 0111		EOX (End System Excl.)

Depending on the command (cccc), a variable number of data bytes (wwww) follow.

cccc = 00H	Activate Split Mode; two data bytes follow. 1st byte wwww: Split Point 00H - 3CH 2nd byte wwww: Upper Transpose 00H - 3CH (00H - 3CH correspond to keys 1-61)
cccc = 01H	Inactivate Split Mode; no data bytes follow.
cccc = 02H	Activate Double Mode; no data bytes follow.
cccc = 03H	Inactivate Double Mode; no data bytes follow.
cccc = 05H	Lower Program Change (see Upper Program Change below).
cccc = 06H	Upper Program Change; one data byte follows. wwww = Program Number 00H - 7FH. 00H - 4AH correspond to programs 1-75 4BH - 7FH correspond to programs 1-53
cccc = 07H	Single Program Dump (transfer one program to the <u>BIT 01</u> ). 1st byte: Program Number 00H - 62H (for 1-99) + 74 bytes wwww for program data <u>or</u> + 14 bytes wwww for Double/Split data (data format see "Bitmaps" below)
cccc = 08H	Full Memory Dump (transfer all programs and Splits/Doubles to the <u>BIT 01</u> ). 74x75 + 14x24 = 5886 bytes wwww follow (data format see "Bitmaps" below)

## GENERAL MIDI CODES

<u>STATUS</u>	<u>DATA BYTE(S)</u>	<u>DESCRIPTION</u>
1000 nnnn	Okkk kkkk 0vvv vvvv	Note Off
1001 nnnn	Okkk kkkk 0vvv vvvv	Note On
1011 nnnn	0ccc cccc 0xxx xxxx	Control Change
1100 nnnn	0ppp pppp	Program Change
1110 nnnn	0www wwww 0www wwww	Pitch Wheel Change

### VALUES

nnnn = MIDI Channel Number 0-15

kkkk = MIDI Key Number (24H thru 60H, corresponding to key 1-61).  
The BIT 01 automatically transposes values outside this range to the nearest octave within the range

vvvv = MIDI Velocity Value. A velocity of 0 in a "Note On" command is the equivalent of a "Note Off" command.

cccc = Control Value or MIDI Controller  
01H = Modulation Wheel; value in xxxx  
40H = Release Pedal; value in xxxx  
7BH = All Notes Off  
7CH = Omni Mode Off and All Notes Off  
7DH = Omni Mode On and All Notes Off

xxxx = Controller Value  
for Modulation Wheel: 00H - 7FH  
for Release Pedal: 00H = off, 7FH = on

pppp = Program Number. 00H - 62H call programs 1-99.  
63H - 7FH call programs 1-29.

www = Pitch Wheel Value; least significant byte (LSB) first, followed by most significant byte (MSB). The BIT 01 uses only the second (MSB) byte. To ensure future compatibility the LSB should be set to 00H.